

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY
(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference 39199	FOR FURTHER ACTION See Form PCT/IPEA/416	
International application No. PCT/FI 2003/000051	International filing date (day/month/year) 22.01.2003	Priority date (day/month/year) 23.01.2002
International Patent Classification (IPC) or national classification and IPC D21C 9/16, D21B 1/16		
Applicant Rinheat Oy et al		

1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 5 sheets, including this cover sheet.
3. This report is also accompanied by ANNEXES, comprising:
- a. ☐ (sent to the applicant and to the International Bureau) a total of _____ sheets, as follows:
- ☐ sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).
- ☐ sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.
- b. ☐ (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) _____, containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).

4. This report contains indications relating to the following items:

- | | | |
|-------------------------------------|--------------|---|
| <input checked="" type="checkbox"/> | Box No. I | Basis of the report |
| <input type="checkbox"/> | Box No. II | Priority |
| <input type="checkbox"/> | Box No. III | Non-establishment of opinion with regard to novelty, inventive step and industrial applicability |
| <input type="checkbox"/> | Box No. IV | Lack of unity of invention |
| <input checked="" type="checkbox"/> | Box No. V | Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement |
| <input type="checkbox"/> | Box No. VI | Certain documents cited |
| <input type="checkbox"/> | Box No. VII | Certain defects in the international application |
| <input type="checkbox"/> | Box No. VIII | Certain observations on the international application |

Date of submission of the demand 19.06.2003	Date of completion of this report 16.04.2004
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Form PCT/IPEA/409 (cover sheet) (January 2004)

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT 2003/000051

Box No. I Basis of the report

1. With regard to the **language**, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.

☒ This report is based on a translation from the original language into the following language English, which is the language of a translation furnished for the purposes of:

- ☐ international search (under Rules 12.3 and 23.1(b))
☒ publication of the international application (under Rule 12.4)
☐ international preliminary examination (under Rules 55.2 and/or 55.3)

2. With regard to the **elements** of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*:

☒ the international application as originally filed/furnished

☐ the description:

pages _____ as originally filed/furnished

pages* _____ received by this Authority on _____

pages* _____ received by this Authority on _____

☐ the claims:

pages _____ as originally filed/furnished

pages* _____ as amended (together with any statement) under Article 19

pages* _____ received by this Authority on _____

pages* _____ received by this Authority on _____

☐ the drawings:

pages _____ as originally filed/furnished

pages* _____ received by this Authority on _____

pages* _____ received by this Authority on _____

☐ a sequence listing and/or any related table(s) – see Supplemental Box Relating to Sequence Listing.

3. ☐ The amendments have resulted in the cancellation of:

☐ the description, pages _____

☐ the claims, Nos. _____

☐ the drawings, sheets/figs _____

☐ the sequence listing (*specify*): _____

☐ any table(s) related to the sequence listing (*specify*): _____

4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

☐ the description, pages _____

☐ the claims, Nos. _____

☐ the drawings, sheets/figs _____

☐ the sequence listing (*specify*): _____

☐ any table(s) related to the sequence listing (*specify*): _____

* If item 4 applies, some or all of those sheets may be marked "superseded."

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT 2003/000051

Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims	<u>1-9</u>	YES
	Claims		NO
Inventive step (IS)	Claims		YES
	Claims	<u>1-9</u>	NO
Industrial applicability (IA)	Claims	<u>1-9</u>	YES
	Claims		NO

2. Citations and explanations (Rule 70.7)

Documents cited:

D1. DATABASE WPI Week 198127 Derwent Publications Ltd.,
London, GB; Class F09
AN 1981-48892D & JP 56058086

D2. US 4116759 A

D3. US 4388148 A

D5. DATABASE WPI Week 198345 Derwent Publications Ltd. London,
GB; Class E33,
AN 1983-813561 & SU 988939

The present invention relates to a method for bleaching mechanically defibred pulp with peroxide in an alkaline environment. The object of the invention is to find a bleaching process, wherein such chemicals could be used that will not melt during combustion of concentrated spent liquors received from the bleaching, when heat and chemicals are to be recovered from the liquors.

Document D1 discloses a method for the bleaching of mechanically defibred pulp with a peroxide-containing alkali solution. The waste liquor obtained in the bleaching step is combusted and alkali is recovered from the ash and recycled to the peroxide step. The preferred alkalis are hydroxides and/or oxides of alkali metals. The method simplifies the bleaching process and reduces problems of waste liquor disposal.

.../...

Supplemental Box

In case the space in any of the preceding boxes is not sufficient.

Continuation of: BOX V

The method in claim 1 differs from the method in D1 in that the alkali used in the bleaching step is an alkali metal aluminate. The effect achieved by using aluminate instead of sodium hydroxide is, according to the application, that the aluminate will not melt in the combustion but will form an ash, which is readily dissolvable in water, thus achieving a less demanding and less expensive recovery of chemicals.

Thus, in view of D1, the problem to be solved is to seek a process for the bleaching of mechanically defibred pulp, with a less demanding and less expensive recovery of chemicals than in conventional processes using sodium hydroxide as alkali.

Document D2 discloses a method for the regeneration of chemicals from spent liquor containing salts of polybasic inorganic acid, e.g. aluminates, as alkali. The spent liquor is combusted to obtain an alkaline inorganic substance, and the inorganic substance is dissolved in water to form the alkaline salt used. This process can be used in the regeneration of chemicals used as alkali in a bleaching process, see column 1, lines 35-38. By using e.g. aluminates as an alkali instead of conventional chemicals in the bleaching process, a less complicated regeneration process can be used.

The person skilled in the art, faced with the problem of seeking a less demanding and less expensive recovery of chemicals, gets a hint from D2 to replace the conventional bleaching alkali with chemicals such as aluminates. Consequently, it is considered to be obvious to a person skilled in the art to combine the teachings of D1 and D2, thus arriving at the method in claim 1. The fact that the bleaching process mentioned in D2 relates to the bleaching of chemical pulp is not an important difference in this context, since the choice of alkali in the bleaching process and the problem to be solved have not been shown to be dependent on how the pulp that is to be bleached has been produced.

The feature in claim 2 is obvious in view of the teachings in D2.

From D3 and D5 processes for mechanically refining pulp are

.../...

Supplemental Box

In case the space in any of the preceding boxes is not sufficient.

Continuation of: Box V

known, in which sodium aluminate is added to the refining process. It is considered to be obvious to a person skilled in the art to combine the teachings in D3 or D5 with D1 and D2, thus arriving at the invention defined in claims 3-4.

The features in claims 5-9 define conditions in the bleaching step and in the recovery step which are considered to be obvious to try out for a person skilled in the art in view of D1 and D2.